

THE IMPACT OF TEACHER INTERVENTION ACCEPTANCE ON CHILD OUTCOME MEASURES

by

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The purpose of this study is to determine to what degree teacher acceptance and use of an evidence-based intervention predict positive child outcomes following the intervention period. Teacher participants ($n = 10$) were rated on the degree to which they accept the given intervention (as measured by the *Assessment of Foundations® Scale*). Student participants included 114 Kindergarten children (ages 5-6). Existing letter-sound knowledge data were collected for all kindergarteners who participated. It was hypothesized that higher teacher acceptability of Foundations®, as measured by *Assessment of Foundations®*, would be positively and significantly correlated with greater letter-sound recognition gains over the intervention period. This information extends current research by adding outcome measure correlates. Secondly, data were used to examine outcomes from an existing intervention. Previous research used acceptability ratings to identify the most feasible interventions from a series of theoretical interventions. Results of this study found two of the four acceptability and use factors (acceptability and feasibility) were positively and significantly correlated with student outcomes.

THE IMPACT OF TEACHER INTERVENTION ACCEPTANCE ON CHILD OUTCOME
MEASURES

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CHAPTER I: INTRODUCTION

In recent years, evidence-based interventions, those proven effective by rigorous outcome evaluation studies, have become the focus of intervention research in education and psychology (Stoiber & Kratochwill, 2000). Reasons for this focus on intervention effectiveness include the adoption of the *No Child Left Behind Act of 2001*, increased pressure from managed care, and the predominance of the scientist-practitioner model of service delivery in school psychology (Walcott & Riley-Tillman, 2007). The field of psychology has focused much energy on investigating evidence-based interventions (EBIs), but often has failed to determine if these interventions are effective outside the carefully controlled confines of laboratory settings or clinical trials.

A task force created by the 16th division of the American Psychological Association (APA) has brought increased awareness to potential problems with EBI dissemination in the schools. The APA's School Psychology Taskforce began the investigation by considering the unique context of schools. This context includes classroom-based interventions, school-wide prevention programs, and methodological issues resulting from an uncontrolled, natural environment. Although the idea of empirically supported interventions is enticing to researchers and practitioners, Stoiber and Kratochwill (2000) identify two fundamental stumbling blocks to implementation: argument over criteria used to define EBIs and disagreement over distribution of an EBI list. Evidence-based interventions that are effective in a laboratory setting may not be efficacious in a naturalistic setting. Evidence based interventions distributed as a list requires users of that list to understand the contextual factors that make a given EBI

effective. A simple list may or may not be sufficient for practitioners to make that determination.

Research plays a major role in the development of theoretical constructs of EBIs; however, the reliability and validity of EBIs in a natural environment must also be considered for an intervention to be applicable in real-world settings. Empirically supported, school-based interventions cannot be constructed without understanding the social and ecological context of the classroom. The success of EBIs in practice hinges on acceptability and systematic use in the classroom (Stoiber & Kratochwill, 2000). As a result, researchers should consider the ecological validity of techniques when developing EBIs for applied use.

Threats to Intervention Effectiveness

Interventions empirically supported by the most reputable research design may fail to function in naturalistic settings, in part, because environmental contingencies are less controlled. When teacher intervention plans are implemented with poor integrity, it is difficult to draw accurate inferences about relationships between an intervention and outcome data. Poor teacher intervention effects in a naturalistic setting, despite adequate empirical support for the practice or intervention program, may be the result of poor intervention fidelity, not intervention effectiveness (Wilkinson, 2006).

Another potential threat to intervention effectiveness is the level of acceptability of, or enthusiasm for, the intervention on the part of the delivering agent (Dane & Schneider, 1998). Because of recent developments in *No Child Left Behind* and *Individuals with Disabilities Education Act*, regular education teachers are increasingly responsible for implementing classroom-based, individualized, academic and behavioral

interventions. The more these interventions differ from what is already happening in a teacher's classroom, the more time, energy and sacrifice is required for their implementation. To increase the likelihood an intervention will be integrated into a teacher's busy day, the intervention must be seen as a valid extension of an already accepted formula. Asking teachers to reinvent their pedagogy to include tasks seen as inappropriate or useless is an ineffectual system for improving student outcomes (Riley-Tillman & Chafouleas, 2003). The introduction of an intervention in a classroom changes the way the classroom functions. For example, a child who is struggling with math facts is currently using flash cards to practice. The flash card intervention does not appear effective and a school psychologist is called to provide an EBI to help the child. Rather than simply instructing the teacher on use of an incremental rehearsal technique, the school psychologist suggests peer tutoring. A seemingly small change in routine results in a major disruption in the flow of learning for the other children. The teacher now needs to teach the student and a peer rules for working in a pair, create materials for the peers to use, and train the tutor in her new role. The best way to insure the integrity of the classroom system is to reduce classroom manipulation required for intervention implementation. To increase the likelihood an intervention is acceptable to the teacher and results in improved child outcomes, intervention implementation should focus on making modifications to what is already seen as an acceptable system rather than introducing a radically different system of operation (Riley-Tillman & Chafouleas).

Evidence to Practice

Chorpita (2004) proposes a model of subsequent monitoring steps that provides equal consideration to increasingly naturalistic research designs as an extension of

highly controlled, efficacy designs. This model illustrates the steps required to move an intervention from success in a controlled environment to success in a natural environment. Chorpita's model examines clinical intervention effectiveness and implementation using four steps: I-Intervention Efficacy, II-Effectiveness: Transportability, III-Effectiveness Dissemination, and IV-Effectiveness: System Evaluation. According to Chorpita, Step 1 research is characterized by stiff control over "upstream" elements such as: intensive practitioner supervision, careful participant screening and selection, and a high degree of practitioner training. This is the most controlled type of research and results determine the efficacy of a given practice. Like Step 1 research, Step 2 research is confined by the laboratory setting. The main difference is the absence of exclusionary practices during subject selection. Step 3 research includes studies that have been disseminated into a naturalistic setting (e.g., a school) and employ a great deal of supervision by the investigative team. Step 4 research, System Evaluation, encompasses research where procedures (e.g., literacy interventions) are performed in a natural environment and without disruption or supervision from the investigative team. Outcomes of these studies complete a feedback loop, left incomplete by other forms of investigative research, by including the collection of subject (e.g., student) outcome data.

System Evaluation research is less common than other forms of intervention research because it cannot be completed until more controlled forms of research have identified interventions, such as Foundations®, as efficacious, effective, and worthy of dissemination. Since Foundations® is a rather new literacy program, there are no published studies directly pertaining to its effectiveness. However, it is the early literacy

component of the middle-years reading program, Wilson Reading®. Wilson Reading® is reviewed and recommended by research studies (Torgesen et al., 2001). In addition, Foundations® incorporates five evidenced-based pillars of early literacy instruction: vocabulary development, comprehension, phonemic awareness, alphabetic principle, and fluency (Institute for the Development of Educational Achievement, 2002-2004). Because the fundamental components of this program are evidenced-based, and the program is being used as an intervention in multiple school districts, the author finds system evaluation appropriate (Hasbrouck, Ihnut, & Rogers, 1999; Juel, 1991; Kame'enuit & Simmons, 1990; Lyon, 1995; National Research Council, 1998; National Reading Panel, 2000).

Treatment Integrity and Intervention Effectiveness

Within education and school psychology literature, the practice of investigating transportability, dissemination, and evaluation of school-based interventions is immature. Generally, studies investigate evidence-based practice and its efficaciousness in highly controlled and or laboratory settings, but fail to identify the parameters necessary for the successful generalization of the given intervention (Chorpita, 2004). Intervention generalization is dependent upon its repeated and consistent use in a natural environment with successful outcomes; however, intervention studies often fall short of addressing practice parameters responsible for this outcome (e.g. teacher intervention integrity, teacher intervention acceptance and use).

In an attempt to demystify the parameters of intervention feasibility, Walcott and Riley-Tillman (2007) reviewed possible influences on successful intervention outcomes.

Those considered included: teacher intervention acceptability, integrity with which an intervention was delivered, systematic use, and effectiveness. Research in school psychology validating teacher acceptability and use as parameters having direct impact on outcome success is scant, although treatment integrity has been more commonly examined in recent years.

Despite an increased interest in treatment integrity, Wilkinson (2006) lists several limitations that may inhibit measurement of integrity that render the relationship between integrity and outcome measures difficult to ascertain. The first limitation involves the use of self-report measures to monitor aspects of integrity. This method can be influenced by social desirability and may overestimate actual levels of integrity more than would a direct, objective collection method. The second limitation is that consultants frequently assume a consultee's 'goodwill' is enough to insure accurate implementation. Research suggests school psychologists tend to use informal teacher reports as the most common form of integrity collection (Bromlett, Murphy, Johnson, Wallingsford & Hall, 2002). Wilkinson coined the term 'consult and hope' to describe this approach to teacher intervention integrity data collection.

In addition to the fact that many intervention attempts are being driven by the 'consult and hope' model, it also remains unclear how much variability in student outcome measures is directly related to teacher intervention integrity alone. Gresham, MacMillan, Beebe-Frankenberger and Bocian (2000) propose teacher intervention integrity as a necessity for the demonstration of a functional relationship between intervention protocol and actual outcomes. That is, it can be assumed that intervention integrity is present in any study where student outcome data demonstrate intervention-

related change. Therefore, if positive student outcomes exist, treatment integrity can be assumed to have been a moderating variable and the need to study integrity as an independent variable is limited. According to this view, treatment integrity may be a necessary component, but not sufficient to produce positive change.

Poorly implemented interventions are likely to negate positive outcomes for students (Noell, 2005). However, examining intervention integrity alone is not sufficient for the study of intervention effectiveness in practical settings such as classrooms (Kazdin, 1980). The possibility exists that teachers' perceived acceptability and use of an intervention may impact child outcome data. This assumption will be tested by this study.

Conceptualization of Intervention Acceptability

In 1978, Wolf studied concepts of intervention acceptability but used the term "social validity" rather than "acceptability." A summary of Wolf's ideas about assessing social validity of interventions must include a discussion of social perceptions of intervention usefulness. Witt and Elliot (1985) illustrate the idea of social perception, using the example of a refrigerator box being placed in the back of a classroom and being used as a time-out space. While researchers may find this practice appropriate, community perceptions of the technique ultimately determine the fate of its practice. A second reason to investigate perceived acceptability is to increase the likelihood an intervention will be implemented with integrity (Wolf). Efficacious interventions that are unaccepted by those charged with implementation are unlikely to benefit children. If a nine hundred page volume is published delineating a magical classroom arrangement that promotes compliant behavior, what is the likeliness teachers will read and

implement the ideas from all nine hundred pages? “A treatment that is not used, is no treatment at all” (Witt & Elliot, p. 253).

Kazdin (1980) extended Wolf’s research to define the construct of intervention acceptability. He listed three factors thought to influence intervention acceptability: treatment efficacy, presence of adverse side effects, and the use of “jargon” in describing intervention procedures. These additions were pertinent because they began to operationalize the concept of acceptability into subconstructs.

Witt and Elliot (1985) and Witt and Martens (1983) reconceptualized both Wolf and Kazdin’s research by defining four different factors likely to influence teacher acceptability of an intervention: availability of material resources, teacher time and expense, perceived benefit to child, and cohesiveness with school philosophy. Thus, this model fits the acceptability research specific to the unique qualities of a school context.

Recent research in the area of teacher intervention acceptability operationalizes the term as “the degree to which individuals perceive school-based practices as fair, reasonable, and appropriate” (Chafouleas, Briesch, Riley-Tillman, & McCoach, 2009).

Although the acceptability construct has traditionally been assessed in applied settings or for treatments of externalizing behavior problems, Eckert and Hintze (2000) promote the expansion of acceptability into school-related areas including academic interventions, consultation practices, and assessment procedures. They do caution against methodological and quantification issues. The main issue, consistent with Chorpita (2004), is a need for increasingly naturalistic research to offset the relative

abundance of analog studies. As such, the current study investigates acceptability and usage of a naturally occurring, evidence-based, literacy intervention, Foundations®.

Secondly, assessment of acceptability has not been tied to intervention use. The current study addresses this consideration by utilizing the *UPR-I* scale (Chafouleas et al., 2009), which has components to address not only acceptability, but also feasibility, understanding, and system support. All four factors should be considered as researchers attempt to generalize acceptability monitoring strategies.

Previous Research on Intervention Acceptability and Use

Acceptability has been measured using numerous rating scales. The more widely used examples include: *Teacher Intervention Evaluation Inventory* (Kazdin, 1980), *Children's Intervention Rating Profile* (CIRP; Witt & Elliot, 1985), *Intervention Rating Profile-20* (IRP-20; Witt & Martens, 1983); *Intervention Rating Profile-15* (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985), *Teacher Intervention Acceptability Rating Form* (TARF; Reimers, & Wacker, 1988), *Assessment Rating Profile-Revised* (ARP-R; Eckert, Hintze, & Shapiro), and *Usage Rating Profile-Intervention* (URP-I; Chafouleas et al., 2009).

Elliot, Witt, Galvin and Peterson (1984) sampled 71 teachers' perceived acceptability of an intervention and examined two independent variables, intervention complexity and behavior problem severity. Researchers hypothesized that the more intensive interventions would be preferred for more severe behaviors and less intensive interventions would be preferred for remediating less severe behaviors. Intervention complexity was composed of three levels: low (e.g., using praise only), medium (e.g., home-based reinforcement), and high (e.g., in-class token economy). Behavior severity

included three levels. Daydreaming was considered a mild problem where as obscene language was considered a moderate problem. The severe behavior category was reserved for destruction of personal property. Intervention acceptability was measured using Witt and Marten's (*IRP-20*). Scores on the *IRP-20* range between 20 and 120 with higher ratings indicating higher acceptability. Overall, teachers rated the low complexity intervention (praise) as the most acceptable treatment for low severity behaviors and the most complex intervention (token economy) as the most acceptable treatment for highly severe behaviors, as the researchers hypothesized. However, the findings for the token economy were not statistically significant.

The second experiment reported by Elliot, Witt, Galvin, and Peterson (1984) was developed with a similar hypothesis. Complex interventions would be rated as more acceptable for severe behavior problems. This time the three levels of intervention were: ignoring (low complexity), response cost lottery (medium complexity), and seclusion time-out (high complexity). Rather than using positive reinforcement interventions, as in the previous behavior study, the researchers identified negative interventions, those involving negative reinforcement, and compared mean acceptance ratings between the two experiments. Teachers did rate positive interventions ($M = 79.89$) as significantly more acceptable than negative interventions ($M = 71.91$). In this experiment, the low complexity intervention of ignoring was most acceptable for the least severe behavior and the high complexity intervention, secluded time-out, was most acceptable for the destruction of personal property. The medium complexity intervention, response-cost lottery was, across all participants, the most accepted intervention. Differences among levels of complexity were significant.

In conclusion, intervention acceptability varied with the severity of the behavior and type of intervention strategies employed. Less complex and less time consuming interventions were preferred unless behaviors targeted for remediation were severe. There was not examination, however, of whether or not perceived acceptability effected the success of intervention outcomes.

Allinder and Oats (1997) investigated the hypothesis that acceptability of a teaching technique (i.e., CBM math probes) influences the fidelity of implementation and, subsequently, increases children's math calculation fluency. Twenty-one elementary special education teachers completed the *CBM Acceptability Scale* which is based on Witt and Elliot's *IRP-20*. Each teacher monitored two students using computer-based CBM probes for four months. No significant differences in acceptability ratings were reported as a function of years of teaching experience, educational degree, or age level of teacher. All teachers received very similar training in CBM.

Teachers were divided into high and low acceptability groups, and a significant difference was found between these teacher groups on some areas of implementation integrity, for example setting challenging goals. There was some evidence that students of the teachers who had higher acceptance of the technique made more progress; however, this effect was demonstrated for only one of two growth outcome measures.

In an experiment by Eckert, Miller, DuPaul and Riley-Tillman (2003), school psychologists from the National Association of School Psychologists registry were asked to rate three potential suicide prevention programs on their acceptability. The acceptability questionnaire, called the *Suicide Prevention Program Rating Profile (SPPRP)*, consisted of questions to determine the intrusiveness, feasibility, fairness,

and potential helpfulness of each prevention program. The *SPPRP* was modeled after the Marten and Witt's *IRP-20*. School psychologists were also asked questions to determine their exposure to the proposed prevention programs, years of experience as a school psychologist, and highest degree earned. Three prevention programs were assessed for acceptability. They included a school-wide screening, teacher in-service training on identification of suicidal behavior, and a curriculum-based training program. School psychologists rated the in-service training program ($M = 38.11$) and curriculum-based training program ($M = 37.69$) as statistically more acceptable than the school-wide screening ($M = 30.27$) which was also evaluated as the most intrusive. There were no significant findings to suggest level of experience or training effected these acceptability ratings. Again, this is an example of intervention acceptability as a dependent variable as opposed to a predictor of intervention outcome.

Chafouleas, Riley-Tillman and Eckert (2003) created an analog study to assess acceptability of three methods of reading assessment: norm-referenced, curriculum-based assessment, and brief experimental analysis. Participants completed the *Assessment Rating Profile-Revised* introduced by Eckert, Hintze and Shapiro in 1999. This study also investigated how level of training and previous use effected school psychologists acceptability ratings. Significant findings were found for several relationships. Across all populations, curriculum-based assessment ($M = 57.93$) was viewed as more acceptable than both norm-referenced assessment ($M = 47.97$) and brief experimental analysis ($M = 52.22$). In addition, higher acceptance of curriculum-based assessment was correlated with higher levels of training ($r = .34$) and higher acceptance of norm-reference testing was correlated with previous use ($r = .45$).

As the previous literature review suggests, measurement tools exist to research perceived intervention acceptability and use. However, few have considered acceptability as a predictor of positive outcomes. The current study used the *Usage Rating Profile-Intervention (URP-I)*. The *URP-I* was chosen for use in this study because unlike other acceptability scales researched, the *URP-I* uses a multi-factor model allowing for identification of specific, functional components that may limit acceptability and use. To fit the measure to the current study, small adaptations in wording were made to make it relevant to a specific academic intervention. The adapted scale is called the *Assessment of Foundations®*.

Significance of the Study

With the lack of research examining teacher acceptability and use of school-based interventions as a predictor of intervention effectiveness, researchers cannot definitively conclude the significance of its effect on child outcomes. Wilkinson (2006) calls for additional studies where teacher intervention acceptability and use are the focus of investigation in evidence based research. This may provide evidence for the existence of a relationship between teacher acceptability, use and final child outcomes. Witt and Elliot (1985) believe future studies must move away from analog studies to investigate interventions which are currently implemented in schools. This shift in focus will allow for the use of acceptability ratings as predictors of child outcomes.

In the current study, a correlation design will examine the relationship between teacher intervention acceptability and use, defined as, “the degrees to which individuals perceive a [teacher intervention] to be appropriate, fair, and reasonable” (Chafouleas et

al., p. 36, 2009), and child outcomes, defined as growth in literacy levels over an intervention period, following the implementation of an EBI.

Purpose and Research Question

The purpose of this study is to determine to what degree teacher acceptance and use of an evidence-based intervention predict positive child outcomes following the intervention period. That is, in the process of implementing an evidence-based, early reading intervention, does greater perceived teacher acceptability positively relate to greater growth in child literacy levels?

Hypothesis

Higher teacher acceptability of Foundations® as measured by the *Assessment of Foundations®* will be positively and significantly correlated with greater letter-sound knowledge gains over the intervention period.

CHAPTER II: METHOD

Participants and Setting

Teacher participants ($n = 10$) were predominantly Caucasian and taught Kindergarten students in a public school system in Eastern North Carolina. Their teaching experience ranged from 1 to 15+ years. All teachers had bachelor's or master's degrees. The teachers received similar training on the implementation of Foundations®, but varied in the amount of input they had during the Foundations® adoption process. Teacher participants were asked for their consent to participate and asked to rate the degree to which they accept the Foundations® early literacy program (as measured by the *Assessment of Foundations®*). Teacher Consent to Participate forms were distributed and required for teacher participation in the study (see Appendix A).

Child participants included 114 Kindergarten children (ages 5-6) who were members of the ten Kindergarten classrooms from a public school system in Eastern North Carolina. Existing letter-sound knowledge data were collected for all Kindergarten students, from these classrooms, who participated in regular education and who do not qualify for an Individualized Education Plan. English Language Learners were also eliminated from the study. Letter-sound knowledge data were collected from a preexisting database.

Measures

Teacher acceptability. Teacher acceptability was measured using the *Assessment of Foundations®* (see Appendix C). This scale is comprised of four factors including: acceptability, understanding, feasibility, and system support. It should be

noted that teachers completed the acceptability and use scale three quarters into their first year of program implementation.

According to structure coefficients reported by Chafouleas et al., (2009), the acceptability factor of the *URP-I* has an Alpha coefficient of .96. This Alpha coefficient indicates high internal reliability. High scores on the *URP-I* (acceptability factor) indicate high levels of intervention acceptability meaning the respondent is enthusiastic about its implementation. The understanding factor of the *URP-I* has an Alpha coefficient of .90 which also indicates excellent internal reliability. High scores on the *URP-I* (understanding factor) indicate high levels of intervention understanding meaning the respondent understands the intervention and feels confident in the skills needed to carry it out. The feasibility factor of the *URP-I* investigates how possible it is to implement this intervention within the constructs of the current environment. The Alpha coefficient of .85 indicates strong internal reliability. The system support factor has an Alpha coefficient of .84 also indicating strong internal reliability. High scores on the system support factor of the *URP-I* indicate the respondent found external support is necessary to intervention implementation. A total acceptability and use score can also be calculated from averaging means from all four factors.

Child outcome data. Outcome data were collected on all students meeting the requirements for the study using letter-sound knowledge data. Letter-sound knowledge data were routinely collected by all Kindergarten teachers on a quarterly basis. Collections occurred during the months of October, December, and March of the 2009-2001 school year. The students were asked to view each letter and report the sound it

made. Students were only required to report one sound for letters associated with multiple sounds. Thus the range of possible scores was 0-26.

Intervention. The intervention used in this study was the Foundations® program by Wilson Reading®. Foundations® is a multisensory approach to reading instruction which can be used as a Tier 1 or Tier 2 intervention. At Tier 1, the program includes a 25-30 minute standard lesson. The program is highly structured and students receive explicit and systematic instruction in early literacy concepts. Lessons incorporate letter formation, sound mastery, and spelling activities. At the targeted school, every kindergarten student participates in the Foundations® curriculum. Foundations® was first published in 2002 and is similar in approach and scope to the evidence-based middle-years literacy program, Wilson Reading®.

Procedure

Once IRB approval was obtained (See Appendix B), a formal request to perform research in the schools was sent to the Principal of the chosen elementary school. After approval was obtained, Teacher Consent to Participate forms were distributed to teachers who teach Foundations® to Kindergarten students at the elementary school. Initial literacy data were obtained from a centrally located database via the Principal of the school. Teachers were asked to complete the *Assessment of Foundations®*. An additional form was distributed to determine to what degree each teacher was involved in the Foundations® adoption process and how long each teacher had been teaching. At the end of the intervention period, approximately 18 weeks after initial data collection, post intervention letter-sound knowledge data were collected from the centrally located database.

Data Analysis

Descriptive statistics for acceptability data are presented. Correlations assessed the relationship between teacher acceptability and child intervention outcome. Mean ratings were collected for each subscale of the measure: acceptability, understanding, feasibility, and system support. A total mean acceptability and use rating was also calculated. The outcome variable was change in letter-sound knowledge across the intervention period.

CHAPTER III: RESULTS

Descriptive Statistics

Descriptive statistics for students are presented in Tables 1 and 2. Table 1 describes the frequency of letter-sound knowledge after the first reporting period of this academic year.

Table 1

Frequency of Kindergarten Students' First Quarter Letter-Sound Knowledge (n = 114)

Number of Correctly Identified Letter Sounds	Frequency (1 st Q)	Percent (1 st Q)
0 Letter Sounds	2	2
1-9 Letter Sounds	32	28
10-18 Letter Sounds	57	50
19-26 Letter Sounds	23	20
Total	114	100

At the time of first quarter data collection, the majority of children were able to identify between 10 and 18 letter sounds. Approximately two percent were unable to identify any letter sounds. Ninety students, 82.5 percent, met or exceeded minimum literacy standards.

The teachers of the above students were asked to complete the *Assessment of Foundations®* acceptability and use measure. Mean scores were collected on four subscales, as was an overall acceptability and use score. Standard deviations and

minimum / maximum scores were also collected for the group. Table 2 describes this data.

Table 2

Descriptive Statistics of Teachers' Acceptability and Use Ratings (n = 10)

Variables	Mean	Standard Deviation	Minimum	Maximum
Assessment of Foundations ® (Acceptability)	4.62	0.57	3.27	5.10
Assessment of Foundations ® (Understanding)	4.42	0.48	4.00	5.33
Assessment of Foundations ® (Feasibility)	4.52	0.67	3.58	5.67
Assessment of Foundations ® (System Support)	3.68	0.84	2.00	4.67
Assessment of Foundations ® (Total)	4.31	0.36	3.84	4.94

Other demographic data such as teacher experience and teacher involvement in the adoption of Foundations® were collected. No group differences in acceptability ratings were found.

Testing of Hypothesis

Pearson correlations were performed to determine if teacher acceptance and use of Foundations® was related to the student literacy outcome measure, positive change in letter-sound knowledge. Correlations were performed for each factor of the *Assessment*

of *Foundations*® measure. These factors were: acceptability, understanding, feasibility, and system support. A correlation between total mean acceptability and use and letter-sound knowledge was also calculated. The correlations between the acceptability and use and letter-sound knowledge are presented in Table 3.

Table 3

Correlations Among Study Variables

	1.	2.	3.	4.	5.	6.
1. Growth in Letter-Sound Task	---					
2. <i>Assessment of Foundations</i> ® (Acceptability)	.23*	---				
3. <i>Assessment of Foundations</i> ® (Understanding)	-.26**	.29**	---			
4. <i>Assessment of Foundations</i> ® (Feasibility)	.56**	.41**	.05	---		
5. <i>Assessment of Foundations</i> ® (System Support)	-.05	.05	-.21*	-.04	---	
6. <i>Assessment of Foundations</i> ® (Total)	.23*	.73**	.34**	.60**	.54**	---

*p<.05 **p<.01.

As would be expected, all *Assessment of Foundations*® subscales positively and significantly correlated with the *Assessment of Foundations*® total mean. With regard to the relationship between teacher ratings and student outcomes, several significant relationships were found. Higher acceptability ratings on the acceptability and feasibility subscales of the *Assessment of Foundations*® were significantly correlated with higher

levels of student growth. That is, the more acceptable and feasible a teacher found Foundations®, the more student growth occurred across the intervention period. The understanding factor was negatively and significantly correlated with student outcomes. Therefore, the less understanding a teacher perceived having about Foundations®, the better the child outcomes. No other significant relationships were found.

IV: DISCUSSION

Despite several decades of research on intervention acceptability, it is still unclear if this factor significantly impacts long-term, sustained implementation or if it predicts better intervention outcomes. The purpose of this study was to determine to what degree teacher acceptance and use of an intervention predicted positive child outcomes following the intervention period. Several significant relationships were found between teacher ratings on the *URP-I* and student outcomes. Higher acceptability ratings on the acceptability and feasibility subscales of the *Assessment of Foundations*® were significantly correlated with higher degrees of student growth. This supports the hypothesis that student outcomes are related to factors of teacher's perceived acceptability.

Acceptability Factor

The acceptability factor of the *Assessment of Foundations*® acceptability and use rating scale was derived from questions designed to determine the degree to which teachers felt enthusiastic about the implementation of Foundations®. An example of one such question read, "I am motivated to use Foundations®." The significant, positive correlation between the acceptability factor and student outcomes fits the hypothesis of this study and supports Witt and Elliot's (1985) theory that efficacious interventions accepted by those charged with implementation are more likely to benefit children. It also supports Dane and Scheider's 1998 assertion that enthusiasm plays a role in implementation effectiveness. In the study by Allinder and Oats (1997), student outcomes differed significantly as a result of teacher acceptability. It should be noted the

scale in this study was based on the *IRP-20* rather than the *IRP-I*. The other major difference between these two studies was that in the Allinder and Oats investigation, teachers were rating the acceptability of an assessment rather than of an intervention.

A correlation between the acceptability factor and student outcomes has implications for future use because it relates teacher enthusiasm for an intervention to student outcomes. Creators of curricular materials should bear this implication in mind when designing and marketing programs to schools. Emphasis should be on maintaining teacher enthusiasm for the duration of the intervention program. Future research should focus on which aspects of an intervention program are likely to create or maintain enthusiasm among teachers.

Feasibility Factor

The feasibility factor of the *Assessment of Foundations*® scale was derived from questions designed to determine the degree to which teachers felt implementation of Foundations® was feasible within the context of their classrooms. An example of one such question read, “The amount of time required to use Foundations® is reasonable.” The significant, positive correlation between the feasibility factor and student outcomes fits the hypothesis of this study and is supported by the research. Teachers prefer interventions which are more feasible regardless of their research backing. Consider the study by Eckert, et al. (2003). The suicide prevention program found most acceptable by teachers was the program they saw as most feasible not the program that was proven most effective by research. Feasibility should be considered a major player in the acceptability arena.

System Support

The system support factor of the *Assessment of Foundations*® scale was derived from questions designed to determine the degree to which teachers felt they needed support from others to implement Foundations®. An example of one such question read, “Implementation of Foundations® requires support from my co-workers.” The negative correlation between the system support factor and student outcomes was not statistically significant and was close to zero ($r = .05$). Chafouleas et al. (2009) indicated system support was negatively correlated with the other three acceptability factors (acceptability, understanding, and feasibility) in their analysis of the *URP-I*. Our study found negative correlations between system support and two of the other acceptability factors (understanding and feasibility). This is the first study attempting to compare system support and student outcomes. Further research is needed to investigate this relationship. Because this intervention program was universally mandated, this particular measure of system support is likely measuring something different than what was intended by the authors of the scale.

Understanding

The understanding factor of the *Assessment of Foundations*® acceptability and use rating scale was derived from questions designed to determine the degree to which teachers felt confident in their understanding of Foundations® and their ability to skillfully implement the intervention. An example of one such question read, “I understand the procedures of Foundations®.” The significant, negative correlation between the understanding factor and student outcomes is counter intuitive and does not support the

hypothesis of this study. These findings conflict with findings by Eckert et al. (2003) which failed to find a significant relationship between teacher training and acceptability ratings. One possible explanation for the negative correlation is that all teachers had similar training and indicated a high degree of understanding. Therefore, the means for this factor were positively skewed reducing the meaningfulness of a correlation. A larger sample size may have produced means diverse enough to complete a meaningful correlation. Future research should investigate this prediction and attempt to explain other reasons this factor may be negatively correlated with student outcomes.

Limitations to Study

There are two noteworthy limitations to this study. First, the investigator did not supervise the student data collection process. Each Kindergarten teacher collected her own letter-sound knowledge data. The data collection was not standardized, and there was no integrity check to determine if data collection was consistent between teachers. Second, baseline letter-sound knowledge data were collected at the end of the first quarter after the intervention had begun. The investigator did not have access to data taken before the intervention began. Lack of pre-intervention data limited the duration of data collection to 18 weeks reducing the confidence that growth in letter-sound knowledge resulted from the intervention.

General Implications and Conclusions

In addition to the implications listed under each acceptability factor, some general implications can be drawn from this study. First, school principals should consider teacher perception in all four areas of acceptability, particularly feasibility, before

choosing curricular programs or materials. Of the four factors assessed by the *Assessment of Foundations*®, feasibility was most highly correlated with positive student growth.

Second, the *Assessment of Foundations*® is a useful measure because the four-factor model informs intervention. This study could have utilized an acceptability rating scale where all survey questions fed into the same construct; however, the implications for informing intervention would be less precise. This study determined teacher enthusiasm and intervention feasibility, but not system support or understanding, were significantly and positively related to student growth in letter-sound knowledge.

Final Thoughts

As the field of school psychology continues to bridge the gap between effective intervention and student growth, pioneers must consider acceptability as a mediator in the process. An intervention branded unacceptable has less possibility of impacting student outcomes. Researchers must find effective interventions, demand those interventions meet standards for dissemination, and require those interventions be acceptable to the system for which they are intended. Eliminating any of these steps may result in loss of time, resources, and opportunity for student growth.

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APPENDIX A: TEACHER CONSENT

TEACHER CONSENT FORM

The Impact of Teacher Intervention Acceptance on Child Outcome Measures

You are invited to participate in a research study conducted by Kelly Reigle, a Graduate Student in School Psychology at East Carolina University. You are specifically being invited because you are a Kindergarten teacher. This study examines teachers' perceptions of intervention acceptability.

WHAT WILL BE DONE IN THIS STUDY?

Teachers chosen to participate will complete the 2-page Acceptability of Foundations[®] Measure and Experience Survey. Existing running record data for 10 randomly selected students will be collected from their classrooms so that growth on repeated reading measures (running records) can be recorded. Identifying information will be removed from all data collection forms. Teacher forms will be marked with an anonymous code rather than their names, and student running record data will not include names.

Description of Measure:

The acceptability scale used in this study is called the Assessment of Foundations[®] measure. It is a 35-item rating scale adapted from the *Usage Rating Profile – Intervention*, created by Chafouleas, Briesch, & Riley-Tillman, Copyright © 2009.

ARE THERE ANY BENEFITS FOR PARTICIPATING IN THIS STUDY?

The Greene County Public School System will receive data on a preliteracy curriculum currently being implemented. Information will include a summary of student growth (average growth change from pre- to post-intervention), and a summary (de-identified across all teachers) of teachers' opinion of acceptability of the pre literacy intervention.

WHAT ARE THE POSSIBLE RISKS OR DISCOMFORTS OF THE STUDY?

We do not anticipate any risks for those who participate. A possible inconvenience will be the time it takes to complete the 2-page rating scale. We do not ask that you do anything different or alter your instructional methods in any way. We are only asking for your anonymous opinion of the intervention program.

WHO HAS ACCESS TO RECORDS?

The only people that will have access to the data are the researchers in the study, Kelly Reigle, her thesis advisor Professor Christy Walcott, and undergraduate lab assistants. When the data are collected, all names will be coded with a random number so that anonymity will be assured. If we present any results from this intervention study in a journal or at a conference, no names will be used.

WHAT IF I WISH TO WITHDRAW OR NOT PARTICIPATE IN THE STUDY?

Participation in this study is voluntary, and you can refuse to participate or withdraw from the study at any time without penalty.

WHAT IF I HAVE QUESTIONS ABOUT THIS STUDY OR MY RIGHTS AS A PARTICIPANT?

If you have any particular questions about this study, please contact the study advisor, Christy M. Walcott, Ph.D. by phone: (252) 328-1378, e-mail: walcottc@ecu.edu, or regular mail: 104 Rawl Bldg., ECU-Department of Psychology, Greenville, NC 27858.

If you have questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously if you wish – the ECU University and Medical Center Institutional Review Board at (252) 744-2914, e-mail: umcirb@ecu.edu, or regular mail: University and Medical Center Institutional Review Board, Life Sciences Building, Room 104, The Brody School of Medicine at East Carolina University, Greenville, NC 27834.

UMCIRB
APPROVED
FROM 2-19-10
TO 2-18-11

AUTHORIZATION

By signing below, you _____ agree to participate in the project called "The Impact of Teacher Intervention Acceptance on Child Outcome Measures" as described above.

Teacher's Signature _____ Date _____

Teacher's Name (please print) _____

Thank you and please return this part of the form to Kelly Reigle or Christy Walcott using the enclosed envelope.

UMCIRB
APPROVED
FROM 2-19-10
TO 2-18-11

APPENDIX B: IRB REQUEST



University and Medical Center Institutional Review Board
East Carolina University, 600 Moye Boulevard
1L-09 Brody Medical Sciences Bldg. • Greenville, NC 27834
Office 252-744-2914 • Fax 252-744-2284 • www.ecu.edu/irb
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

TO: Kelly Reigle, Graduate Student, c/o Dr. Christy Walcott, Dept of Psychology, ECU
FROM: UMCIRB *KCR*
DATE: March 4, 2010
RE: Expedited Category Research Study
TITLE: "The Impact of Teacher Intervention Acceptance on Child Outcome Measures"

UMCIRB #10-0091

This research study has undergone review and approval using expedited review on 2.19.10. This research study is eligible for review under an expedited category number 7. The Chairperson (or designee) deemed this **unfunded** study **no more than minimal risk** requiring a continuing review in **12 months**. Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

The above referenced research study has been given approval for the period of **2.19.10** to **2.18.11**. The approval includes the following items:

- Internal Processing Form (dated 2.8.10)
- Letter of Support (dated 3.3.10)
- Assessment of Foundations®
- Experience Survey
- Teacher Consent Form

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies under the Food and Drug Administration regulation. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.

APPENDIX C: ACCEPTABILITY RATING SCALE

Assessment of Foundations®

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. The amount of time required to use Foundations® is reasonable.	1	2	3	4	5	6
2. I implement Foundations® with a good deal of enthusiasm.	1	2	3	4	5	6
3. Foundations® can be implemented for the duration of time as prescribed.	1	2	3	4	5	6
4. The amount of time required for record keeping with Foundations® is reasonable.	1	2	3	4	5	6
5. I am motivated to use Foundations®.	1	2	3	4	5	6
6. I need consultative support to implement Foundations®.	1	2	3	4	5	6
7. All pieces of Foundations® can be implemented precisely.	1	2	3	4	5	6
8. Foundations® can be implemented with the intensity as prescribed.	1	2	3	4	5	6
9. I have positive attitudes about implementing Foundations®.	1	2	3	4	5	6
10. I understand the procedures of Foundations®.	1	2	3	4	5	6
11. I know what to do if I am asked to implement Foundations®.	1	2	3	4	5	6
12. Overall, Foundations® is beneficial for the child.	1	2	3	4	5	6
13. Implementation of Foundations® requires support from my co-workers.	1	2	3	4	5	6
14. Parental collaboration is required in order to use Foundations®.	1	2	3	4	5	6
15. The requirements for implementing Foundations® are unclear.	1	2	3	4	5	6
16. I would not be interested in implementing Foundations® again.	1	2	3	4	5	6
17. Foundations® can be implemented exactly as described.	1	2	3	4	5	6
18. Foundations® is a good way to handle the child's reading instruction.	1	2	3	4	5	6
19. The amount of time required to use Foundations® is reasonable.	1	2	3	4	5	6
20. I implement Foundations® with a good deal of enthusiasm.	1	2	3	4	5	6
21. Foundations® can be implemented for the duration of time as prescribed.	1	2	3	4	5	6
22. The amount of time required for record keeping with Foundations® is reasonable.	1	2	3	4	5	6

23.	I am motivated to use Foundations®.	1	2	3	4	5	6
24.	I need consultative support to implement Foundations®.	1	2	3	4	5	6
25.	All pieces of Foundations® can be implemented precisely.	1	2	3	4	5	6
26.	Foundations® can be implemented with the intensity as prescribed.	1	2	3	4	5	6
27.	I have positive attitudes about implementing Foundations®.	1	2	3	4	5	6
28.	I understand the procedures of Foundations®.	1	2	3	4	5	6
29.	I know what to do if I am asked to implement Foundations®.	1	2	3	4	5	6

The *Assessment of Foundations®* scale was adapted from the *Usage Rating Profile - Intervention*:

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